SOME QUALITY MEAT INDICATORS OF BULL CALVES OF HIGH HEREDITARY PROPORTION OF THE HOLSTEIN-FRIESIAN BREED

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Dairy breeds are used in selction of dual-purpose commercial cattle, to which also the Slovak Pied breed belongs, to increase the milk production. To the most important breeds belongs Black Pied Lowland cattle. However, when creating a dairy commercial type the meat efficiency does not improve. Therefore it is necessary to pay adequate attention to the study of meat efficiency in the course os selection of the given population.

From some trials with fattening of young bulls of our breeds, when compared with crosses with milk breeds, it turned out the growth intensity of young bulls of crosses up to the age of 12 months is approximately the same. After this age limit it comes in some combinations of crossing to decrease of growth intensity in consequence of higher tallow deposition and to worse muscularity. When we take into account the mentioned knowledge we consider as suitable to use a certain part of young bulls with higher hereditary share of Black Pied Lowland Holstein-Friesian breed for production of young beef by the means of intensive fattening up to the live weight of 400-450 kg.

It was the aim of our work to verify not only the slaughter indices of young bulla os the given genotypes but also some qualitative meat indices which are important from the viewpoint of technological, nutritional and sensoric properties.

MATERIAL AND METHODS

The content of basic chemical components and some qualitative indices were determined in the muscle longissimus dorsi of the crossbreds of Slovak Pied breed with hereditary share of Holstein-Friesian breed /over 75 %/. In the intensive fattening 3 groups were created according to slaughter weight.

Ist group /n=12/ - slaughter weight 350 kg
IInd group /n=12/ - slaughter weight 400 kg
IIIrd group /n=13/ - slaughter weight 450 kg

Young bulls were fed in groups with the growth intensity of 1150 g per head and day on average.

Content of basic chemical components /water, protein, fat, and ash/ was determined by standard methods. In order to determine the DFD syndrome occurrence the pH_{48} was determined by the stab electrode. Colour represented % of remission which was determined at 546 um wave length of SPEKOL. Content of "loosely" bound water was determined by pressing method according to GRAU and HAMM. Cooking losses represent weight decrease of muscle samples cooked in distilled water for 20 minutes. In these thermally processed samples the tenderness was determined on the consistometer WARNER-BRATZLER in units of shearing force. Content of connective tissue proteins was calculated from the determined hydroxyproline content.

RESULTS

In table 1 are given the average results of basic chemical contents and in table 2 are the followed qualitative indices of musculus longissimus dorsi.

Content of fat /1.27 - 1.76 %/ showed a moderate increase up to slaughter weight of 350-450 kg. However, it was not statis-

tically proved because of quite high variability of the average results. Contens of total proteins /21.85 - 22.32 %/ and of ash /0.92 - 0.99 %/ were numerally quite balanced and their differences non-significant /P 0.05/. The pH_{48} /5.67 - 5.80/ values, which were determined, excluded the presence of DFD syndrome. In the colour of muscle, which is expressed in % of remission, a moderate decrease was observed /10.89 - 8.52 %/ i.e. from moderate light to moderate dark, and in tenderness of samples processed by cooking a moderate increase /8.94 - 9.93 units of shearing force/ was observed. However, the differences were not statistically significant. /P 0.05/

The results of cooking losses, found within 40.74 - 42.64 %, of "loosely" bound water /33.10-33.91 %/ and of connective tissue proteins /0.35 - 0.38 %/ did not show more significant changes with regard to live weight of young bulls.

CONCLUSION

From the results which were achieved following conclusion can be made:

No significant changes in the content of basic chemical components /water, fat proteins, mineral matters /occur in MLD during the intensive fattening of young bulls - crossbreds of Black Pied Lowland breed for production of young beef within the slaughter weight of 350 - 450 kg. This influence was not significant in the followed qualitative indices / % of remission, content of "loosely" bound water, tenderness of muscle, content of connective tissue proteins/, too. The DFD syndrome was absorved not even in one case.

We can state the young bulls with high hereditary share of Black Pied Lowland breed /over 75 %/ are quite balanced in the basic chemical structure as well as in qualitative properties at lower slaughter weights /350 - 450 kg/. They are suitable from the viewpoint of technological and culinary processing.

Tab. 1

	Ist group	IInd group	IIIrd group
water %	75.94	75.20	74.92
proteins %	21.85	22.00	22.32
fat %	1.27	1.78	1.76
ash %	0.92	0.99	0.99

Tab. 2

	Ist group	IInd group	IIIrd group
pH_{48}	5.89	5.67	6.05
remission %	10.89	9.87	8.52
"loosely"bound water %	33,13	33.91	33.10
cooking losses%	42.02	42.64	40.74
tenderness in shearing units	8,94	9,78	9,93
connective tissue proteins /1.27-1.76 %/	0,38	0,48	0,35